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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/919,667	07/31/2001	Hiroaki Furuichi	16869S-030600US	4676

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EXAMINER

CURS, NATHAN M

ART UNIT PAPER NUMBER

2633

DATE MAILED: 05/21/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/919,667

Applicant(s)

FURUICHI ET AL.

Examiner

Nathan Curs

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-18 is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-13 and 19 is/are rejected.
- 7) ☒ Claim(s) 8, 9 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3 and 7</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Optical Module Which Permits Stable Laser Output".

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-7, 10 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohshima et al. (US Patent No. 4998256).

Regarding claim 1, Ohshima et al. disclose an optical module comprising: a semiconductor laser; a lens for converting a beam emitted from said semiconductor laser into a substantially parallel beam; a beam splitter for splitting the converted beam into a reflected beam and a transmitted beam; a first light-receiving element disposed such that one of the split beams is incident thereupon through an etalon; and a second light-receiving element disposed such that another one of the beams is incident thereupon (fig. 5 and col. 4, line 16 to col. 5, line 24), wherein a center of a reflected beam from said etalon occurring due to incidence of the split beam upon said etalon is arranged to return to a region other than a beam-emitting portion of said semiconductor laser (figs. 12 and 13 and col. 11, line 55 to col. 12, line 24).

Regarding claim 2, Ohshima et al. disclose an optical module comprising: a semiconductor laser; a lens for converting a beam emitted from said semiconductor laser into a substantially parallel beam; a beam splitter for splitting the converted beam into a reflected beam and a transmitted beam; a light-receiving element disposed such that all or a portion of the beam is incident upon the light-receiving element through an etalon (fig. 5 and col. 4, line 16 to col. 5, line 24), wherein a center of a reflected beam from said etalon occurring due to incidence of the split beam upon said etalon returns to a region other than a beam-emitting portion of said semiconductor laser (figs. 12 and 13 and col. 11, line 55 to col. 12, line 24).

Regarding claim 3, Ohshima et al. disclose the optical module according to claim 2, wherein the center of the reflected beam from said etalon is arranged to return to a region other than an end face including the emitting portion of said semiconductor laser (figs. 12 and 13 and col. 11, line 55 to col. 12, line 24).

Regarding claim 4, Ohshima et al. disclose the optical module according to claim 2, wherein, in junction-up connection in which the emitting portion of said semiconductor laser is mounted remote from a substrate, said lens is mounted offset in a direction away from said substrate on which said semiconductor laser is mounted (fig. 14 and col. 12, lines 42-50).

Regarding claim 5, Ohshima et al. disclose the optical module according to claim 3, wherein, in junction-up connection in which the emitting portion of said semiconductor laser is mounted remote from a substrate, said lens is mounted offset in a direction away from said substrate on which said semiconductor laser is mounted (fig. 14 and col. 12, lines 42-50).

Regarding claim 6, Ohshima et al. disclose the optical module according to claim 2, wherein, in junction-down connection in which the emitting portion of said semiconductor laser is mounted close to a substrate, said lens is mounted offset in a direction of approaching said

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substrate on which said semiconductor laser is mounted (figs. 12 and 13 and col. 11, line 55 to col. 12, line 24).

Regarding claim 7, Ohshima et al. disclose the optical module according to claim 3, wherein, in junction-down connection in which the emitting portion of said semiconductor laser is mounted close to a substrate, said lens is mounted offset in a direction of approaching said substrate on which said semiconductor laser is mounted (figs. 12 and 13 and col. 11, line 55 to col. 12, line 24).

Regarding claim 10, Ohshima et al. disclose the optical module according to according to claim 3, wherein a beam incident plane of said etalon is inclined with respect to the transmitted beam which is transmitted therethrough (figs. 12 and 13 and col. 11, line 55 to col. 12, line 24).

Regarding claim 12, Ohshima et al. disclose the optical module according to according to claim 10, wherein a side elevational shape of said etalon is a parallelogram (col. 13, lines 5-8).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 11, 13 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohshima et al. (US Patent No. 4998256).

Regarding claim 11, Ohshima et al. disclose the optical module according to according to claim 10, and discloses that the incline of the etalon is offset by a very small angle and the

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angle is a ratio of the distance between the upper surface of the laser and the active layer of the laser to two times the focal length of the lens (fig. 12 and col. 11, line 55 to col. 12, line 16), and also disclose that as the incline prevents instability due to reflections from the etalon, but that as incline angle increases the light transmitted through the etalon decreases and the fineness is degraded (col. 11, lines 6-23), but do not disclose that the beam incident plane of said etalon is inclined in a range of 1 to 5 degrees. However, it would have been obvious to one of ordinary skill in the art at the time of the invention that the incline of the etalon is offset by 1 to 5 degrees, to provide the small angle to direct the reflections from the etalon away from the end face of the laser, while maintaining optimal light transmission and fineness, as disclosed by Ohshima et al.

Regarding claim 13, Ohshima et al. disclose the optical module according to according to claim 10, and disclose setting the entire body of the etalon at an angle to create the inclination as opposed to modifying the etalon to have inclined facets (col. 12, lines 51-57), but do not disclose that said inclination is formed by changing the thickness of a joining member for joining said etalon and said substrate for mounting said etalon. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the angled setting of the unmodified etalon by changing the thickness of the a joining member for the etalon, as changing the thickness of a joining member is a simple manufacturing modification to set the body of the etalon at an angle that doesn't require any additional components.

Regarding claim 19, Ohshima et al. disclose an optical module comprising: an etalon which has a side elevational shape of a parallelogram (col. 13, lines 5-8) and whose light incident plane and emergent plane are inclined at a very small angle from a right angle with respect to a substrate on which said etalon is mounted (fig. 12 and col. 11, line 55 to col. 12, line 16), and also disclose that as the incline prevents instability due to reflections from the etalon, but that as incline angle increases the light transmitted through the etalon decreases and

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the fineness is degraded (col. 11, lines 6-23), but do not disclose that the incline angle is within a range of 1 to 5 degrees. However, it would have been obvious to one of ordinary skill in the art at the time of the invention that the incline of the etalon is offset by 1 to 5 degrees, to provide the small angle to direct the reflections from the etalon away from the end face of the laser, while maintaining optimal light transmission and fineness, as disclosed by Ohshima et al.

Allowable Subject Matter

6. Claims 8, 9 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Claims 14-18 are allowable.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- US Patent No. 5130998 – Note means for laser wavelength stabilization achieved by minimizing the differential output of two photosensors receiving optical signals from etalons.

9. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (703) 305-0370. The examiner can normally be reached M-F (from 9 AM to 5 PM).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (703) 305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.



JASON CHAN
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